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CURRENT LITERATURE

BOOK REVIEWS

Forest physiography¹

This volume, intended primarily for the use of foresters, will be of very great value to ecologists, even to those working upon problems which are unrelated to forests. Its field of usefulness extends farther still, for it is the first work in which the much-scattered literature dealing with the physiography of various parts of the United States has been summarized and systematized. It will thus be frequently consulted by geologists, geographers, economists, and travelers. The ecologist as a rule must work out for himself the physiographic processes which are in immediate operation in his field of study. The value of Professor BOWMAN's work will be found to lie principally along two lines: in the clearing up of the physiographic history of the region, and in comparison of the field of study with other parts of its physiographic region and with other regions.

The book comprises two parts. Part I is entitled "The soil," and is a summary of the present knowledge of that subject as it pertains to forest growth. This section is included because the influence of the physiographic processes upon forests is exerted largely through the formation, modification, and destruction of soils. It seems to the present writer that a better plan would have been to expand this section into a separate work, since the two parts of the book are essentially independent. The topics treated are as follows: importance, origin, and diversity of soils; physical features; water supply; temperature; chemical features; humus and nitrogen supply; soils of arid regions; soil classification.

In part II the physiography of the United States is considered by regions, each subdivision having "an essential uniformity or unity of geologic and physiographic conditions," and therefore a uniform topographic expression in the main. The sequence is from west to east. An introductory chapter discusses physiographic, climatic, and forest regions. In consideration of climate, full recognition is given to the combined effect of the various factors upon plant distribution, and yet MERRIAM's "life zones" are accepted, although they are based upon temperature alone.

The chapters devoted to the various physiographic regions are largely descriptive of the present topography, with only such geologic details as are necessary to explain it. As the author remarks in the preface, the forester

¹ BOWMAN, ISAIAH, *Forest physiography*. pp. xxii+759. *pls.* 6. *figs.* 292. New York: John Wiley & Son, 1911.

is concerned with the relief of a region rather than with its geologic history. At the same time, the historical treatment is entirely adequate to satisfy the needs of an ecologist, and abundant references to the literature are given for the benefit of any who wish more detailed information. To illustrate the mode of treatment, the section devoted to the Adirondack Mountains may be cited. The subdivisions are as follows: geologic structure, topography and drainage, glacial effects, climate and forests.

The notes upon the forests which are appended to most of the sections are the least satisfactory portions of the work, being so brief and general as to be almost useless, and in one case at least inaccurate. The conifer forest of the southern Appalachian summits is referred to in three places. On p. 122 it is correctly described as "spruce and balsam." On p. 125 we read of the "spruce and hemlock forests on the summits of the Pisgah and other ranges in western North Carolina, where boreal conditions exist." The hemlock in these mountains is found principally in deep ravines in the lower hardwood forest belt, and rarely attains to the lower margin of the spruce-balsam forest. On p. 614 occurs the statement that "on the higher summits of the Great Smoky, Pisgah, and Balsam Mountains are a few thousand acres of black spruce," with no mention of the balsam, which is the more important of the two. On the same page, the author places the hemlock where it rightly belongs, in "shaded ravines and on the better watered northern or north-western slopes between 3000 and 5000 feet."

The book is adequately illustrated and has valuable physiographic and geologic maps. Its great weight is to be regretted, in a volume which one would wish to carry upon his travels.—WILLIAM S. COOPER.

A Yosemite flora

Professor and Mrs. H. M. HALL of the University of California are pioneers in the production of a local flora or handbook of one of our great natural playgrounds. Scores and scores of other local floras have been produced, but these have been as a rule mere check lists, and in all cases were intended to meet a local need. In this *Flora of the Yosemite*² we have a handbook that will find its largest use among strangers to the region. It is hardly necessary to call attention to the small size of this National Park as compared with the size of the great state of California, nor to the great size of the Park *botanically* considered. Within its 1024 square miles there are probably more kinds of soil and climate than can be found in any equal area in the world. This varied topography and climate have supplied the 955 species included in the flora. The grasses, sedges, and rushes are not included, but the authors conservatively estimate that these would swell the number to 1200, a number probably as great as that of an entire state in the prairie region.

² HALL, HARVEY MONROE and CARLOTTA CASE, A Yosemite flora. San Francisco: Paul Elder & Co. \$2.16.